

Work Order ID 79790

79790

Page 1

February-03-12 9:20:26 AM

Item ID: D407-667-105

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Crosstube Fwd

Start Date: 03/02/2012 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 10/02/2012 Req'd Qty: 1.00 *1*

Customer:

Reference:

Approvals: Process Plan: M.C.J. Date: 12/02/03 Tooling:

Run Start *NR1*

QC: Date: SPC (Y/N):

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D407-667-145	Rev C (DEO)
DSI9565	A

100

0.00

100

DOCUMENT-CONTROL

DC

Memo

0.00

Document Control

Photocopy bluefile and create labels as per PPP D407-667-105 CHG004

110

0.00

110

Packaging

Packaging

Memo

0.00

Packaging

Handwritten: 12-4-11

Handwritten: MO 12/3/15

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120		0.00							
120	BENDING MACHINE - CROSSTUBES								
CNC Bend 2	Memo	0.00							
CNC Alpha 160 Bender	Bend tube as per Dwg D407-667-145 using CNC bender program 407-fw								
130	QC15- Crosstube Dimensional Check	0.00							
130									
QC	Memo	0.00							
Quality Control									

MO/KM 12-3-15

5/12/13/15

KL

W/O:		WORK ORDER CHANGES					
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N9000040100Setup Start ***NS1***

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Stop ***NS2***

Item Name: Crosstube Fwd

Start Date: 03/02/2012 Start Qty: 1.00

1

Cust Item ID:

Required Date: 10/02/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

140

0.00

140

Crosstubes

Crosstubes

Memo

0.00

Crosstubes

1- scribe batch # inside of cuff

2-Drill pilot holes in tube using drill Jig DT8541 & DT8542 as per Dwg D407-667-145. Drill all (3) top holes use drill table jig DT8577 hole #1,#11 to set up towers, as per QSI0010.

3-Drill and Ream all holes in tube to finish size using drill Jig DT8541 & DT8542 as per Dwg D407-667-145 Check dimensions between holes on all four sides.

4-Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins.

5-Drill pilot holes using drill Jig DT8541 & DT8542 as per Dwg 407-667-145. Drill only the top (2) holes.

6-Drill & ream the top (2) holes to finish size using drill Jig DT8541 & DT8542 as per Dwg D407-667-145

7-Drill Fwd rivet holes using drill Jig DT8787FWD as per Dwg D206-667-145. Note: Fwd side has 3x top holes.

8-Drill Aft rivet holes using drill Jig DT8787AFT as per Dwg D407-667-145.

9-C'sink holes as per Dwg D407-667-145. Allow rivet to sit below surface to compensate for paint.

10 -Deburr & Inspect for surface damage. Repair damage within limits as per

IW - 12-3-16

W/O:		WORK ORDER CHANGES					
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QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

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Dwg D407-667-145

150

Crosstubes Chemical Conversion

0.00

150

HandFXtube

Memo

0.00

Hand Finishing Crosstubes

Rm 12-3-16

160

QC3- Inspect Part Finish

0.00

160

QC

Memo

0.00

Quality Control

W 12 03 19 (1)

170

QC5- Inspect part completeness to step on W/O

0.00

170

QC

Memo

0.00

Quality Control

W 12 03 19 (1)

W/O:		WORK ORDER CHANGES					
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N900040100

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Required Date: 10/02/2012 **Req'd Qty:** 1.00 *** 1 ***

Customer:

Reference:

Run Start *NR1*

Approvals: _____ **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Stop *NR2*

OC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

180 Outsource process - NDT per QSI038 4.1

0.00

180

0.00

Outsource2

Memo

Outsource process - NDT

OUTSIDE SERVICE -CROSSTUBES
Liquid Penetrant Inspection as per QSI 038 Or
Issue P/O: 6555 LPI as per ASTM 1417
Level 2 Attach copy of NDT results to work order

190

0.00

190

Packaging

0.00

Packaging

Memo

Packaging

Inspect for transit damage
Ensure copy of NDT results attached to work order.

200

QC5- Inspect part completeness to step on W/O	0.00
---	------

0.00

200

0.00

QC

Memo

Quality Control

Inspect for damage & ensure results are as per Dwg D206-667-145

W/O:		WORK ORDER CHANGES					
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Cust Item ID:

Required Date: 10/02/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

210

0.00

210

SprayPaint

SprayPaint

Memo

0.00

Spray Painting

1-Prime inside and outside crosstube as per QSI 005 4.2

2-Paint outside crosstube with White Imron as per QSI 005 4.2

PRIME: 120133

Start Time: 7:00

Finish Time: 7:30

PAINT: 120985

Start Time: 11:27

Finish Time: 12:00

AS 12 - 3 - 28

220

QC14- Inspect Spray Paint

0.00

220

QC

Memo

0.00

Quality Control

Then, Wrap in plastic bag to protect from scratches

S 12/13/30

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Run Start *NR1*

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Stop *NR2*

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230

0.00

230

Crosstubes

AS 12 - 4 - 2

Crosstubes

Memo

0.00

Crosstubes

1-Abrade mating surfaces of support and crosstube with 400 grit sandpaper, clean the area with 4105S wash 'n' wipe

2-Install supports with Proseal 890 per DSI9565 and QSI 015
A/R Proseal 890 Batch: 120867

3- Torque bolts as per dwg

4-Install nut plates as per Dwg D407-667-145. Touch-up rivet heads with Imron paint.

240

QC5- Inspect part completeness to step on W/O 0.00

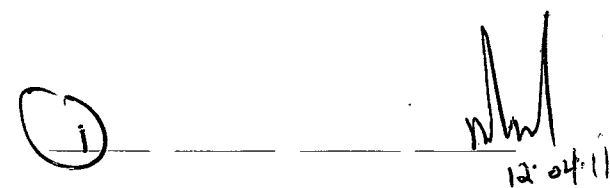
240

QC

Memo

0.00

Quality Control



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Item Name: Crosstube Fwd

Start Date: 03/02/2012 Start Qty: 1.00

1

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Required Date: 10/02/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

250

Pick Kit

0.00

250

Packaging

Memo

0.00

Packaging

12/4/11 *(Signature)*

260

QC4- 100% Inspect kits for completeness

0.00

260

QC

Memo

0.00

Quality Control

8-2-2011

(Signature)

270

Packaging

0.00

270

Packaging

Memo

0.00

Packaging

Identify and pack for shipping as per PPP D407-667-105

Location: _____

PPP Rev: *D*

(Signature)

12/4/11 *sf*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Work Order ID 79790***79790***

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Revision ID:

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Cust Item ID:

Required Date: 10/02/2012 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

280

QC21- Final Inspection - Work Order Release

0.00

280

QC

Memo

0.00

Quality Control

12/4/12

12-04-12

W/O:		WORK ORDER CHANGES					
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Picklist Print

February-03-12 9:20:30 AM

Page 1

Work Order ID: 79790

79790

Parent Item: D407-667-105

D407-667-105

Parent Item Name: Crosstube Fwd

Start Date: 03/02/2012

Required Date: 10/02/2012

Start Qty: 1.00

Required Qty: 1.00

Comments:

IPP Rev:F 05.09.01 Add holes for compatibility with Bell SkidtubesKJ/JLM
 IPP Rev:G 08-05-16 chg QC6 to QC15 DD verified by:EC
 IPP Rev:H 08-06-03 update as per DSI9415 (ECN1198) DD verified by:ec
 IPP Rev:I 08-07-14 add (scribe inside of tube) seq.6 DD verified by:EC
 IPP Rev:J 08-07-28 update as per (par 08-013) DD verified by:EC
 IPP Rev K 09.01.06 ECN 08-562 EC verified by:DD IPP REV:L
 11.08.05 PER ECN 11-615 DD VERF:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D407-667-105TRN		Manufactured	No			110	Each	0.0000	1	①	MO	12/3/15	
D407-667-105TRN					80710				**				
Crosstube Turning Detail													
D2873-043		Manufactured	No			230	Each	22.0000	2	2			
D2873-043									**			AS 12-4-2	
Nut Plate Assembly					80228					②			
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				LG052		22							
				72644		2							
				75010		20							
D2873-045		Manufactured	No			230	Each	15.0000	2	2			
D2873-045									**			AS 12-4-11	
Nut Plate Assembly					81425 80162					① ①			
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				LG052		15							
				74985		15							
D2891-1		Manufactured	No			230	Each	28.0000	2	2			
D2891-1									**			AS 12-4-2	
2.25 Support					80160					②			
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				LG052		28							
				72822		8							
				75176		20							

W/O:		WORK ORDER CHANGES					
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Work Order ID: 79790

79790

Parent Item: D407-667-105

D407-667-105

Parent Item Name: Crosstube Fwd

Start Date: 03/02/2012

Required Date: 10/02/2012

Start Qty: 1.00

Required Qty: 1.00

D3595-063-395

Manufactured No

230 Each

50.0000

4

4

D3595-063-395

RUBBER CUSHION

82223

**

(4)

AS 12-4-2

Location

Loc Qty

Loc Code

MAT052

50

74300

50

MS20601-AD4W10

Purchased No

230 Each

137.0000

14

14

MS20601-AD4W10

RIVET

120676

**

(14)

AS 12-4-11

Location

Loc Qty

Loc Code

LG051

137

118675

37

119386

100

MS21920-20

Purchased No

230 Each

62.0000

4

4

MS21920-20

Clamp (per MIL-DTL-8783C)

120676

**

(4)

AS 12-4-2

Location

Loc Qty

Loc Code

LG050

62

116799

10

119386

2

120475

50

AN5-10A

Purchased No

250 Each

416.0000

10

10

AN5-10A

Bolt

**

(4)

120770 12/4/11

Location

Loc Qty

Loc Code

ST337

416

118191

80

119547

236

119981

100

February-03-12 9:20:30 AM

Shop Packet Print

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Parent Item Name: Crosstube Fwd

Start Date: 03/02/2012

Required Date: 10/02/2012

Start Qty: 1.00

Required Qty: 1.00

AN5-30A

Purchased

No

250

Each

101.0000

4

4

**

AN5-30A
BOLT

Location

Loc Qty

Loc Code

ST339

101

117514

7

118706

19

120423

75

120423

AN5-32A

Purchased

No

250

Each

258.0000

4

4

**

AN5-32A
Bolt

Location

Loc Qty

Loc Code

ST339

258

118628

8

118983

25

119328

100

119862

50

120423

75

119328

AN960JD516

NAS1149D0563J

Purchased

No

250

Each

0.0000

18

18

**

AN960JD516
Washer

MS21042L5

Purchased

No

250

Each

1,864.000

4

4

**

MS21042L5
Nut

Location

Loc Qty

Loc Code

ST300

1864

116105

5

116548

43

117611

42

118179

274

119109

1500

119109

February-03-12 9:20:30 AM

Shop Packet Print

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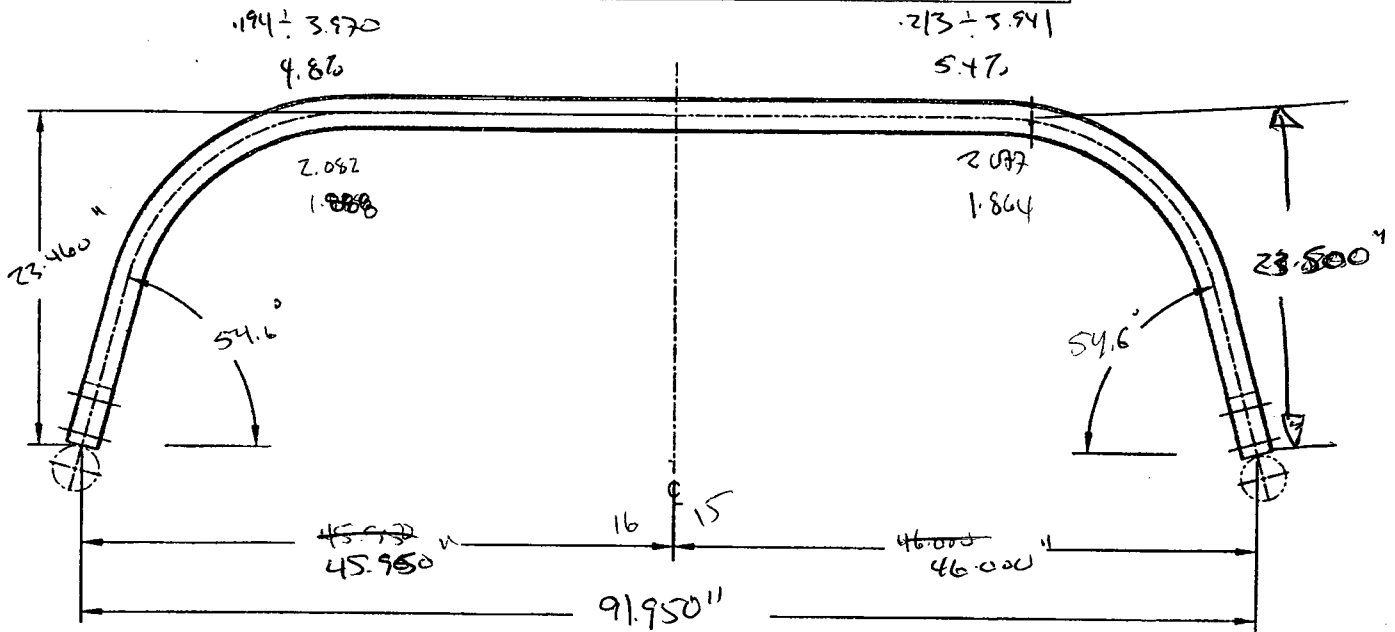
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DART AEROSPACE LTD		Work Order:	79790
Description: Crosstube High Fwd (407)		Part Number:	D407-667-105
Inspection Dwg: D407-667-145 Rev: C		Page 1 of 1	

Required Dimension	Min	Max
Height	23.41	23.67
1/2 Span	45.81	46.07
Angle	54	56
Total Span	91.63	92.13



Comments
SIDE A = 4.8% crush @ 16 Passes
SIDE B = 5.4% crush @ 15 Passes

QC15 Inspection	8
Date	17/03/15

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	09.11.12	Dimensions updated per Dwg Rev C	KJ	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Item	Qty	Part Number	Description
	-145		
1	X	D407-667-145	CROSSTUBE ASSEMBLY (407 HIGH FWD)
2	1	D6010-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2891-1	SUPPORT
6	4	D3595-063-395	RUBBER CUSHION
7	4	MS21920-20	CLAMP (OR MS21920-21)
8	14	MS20601AD4W10	RIVET (OR NAS9302B-4-10)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6010-115
FINISHED LENGTH = 113.20±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D407-667-145" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 17.8 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 6 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-20 CLAMPS (OR -21) WITH D3595-063-395 RUBBER CUSHIONS TO SECURE THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

UNCL
SURF

NO 79790 M.C.J
12/02/03

DEO ATTACHED

ECW #11-615
11.07.26

UNDER REVIEW

RELEASED
08/11/12

C	REVISE GENERAL NOTES/PART LIST (ZN D7-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-395 WAS D2856-400-694 (ZN D6-2 & A5-2); REMOVED REF. 7 ADD TOLERANCES (ZN C6-3, C4-3, D2-3); RELOCATED FLAG #6 (ZN A8-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.11.06
B	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKUDTUBES	PH	05.07.26
A	NEW ISSUE	CP	02.05.08
REV.	DESCRIPTION	BY	DATE
DESIGN	9P	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF	DRAWING NO. D407-667-145	
CHECKED	CP	REV. C	
MFG. APPR.	CP	SHEET 1 OF 4	
APPROVED	CP	TITLE CROSSTUBE ASS'Y (407 HIGH FWD)	
DE APPR.	CP	SCALE NTS	
DATE	08.11.06	COPYRIGHT © 2002 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

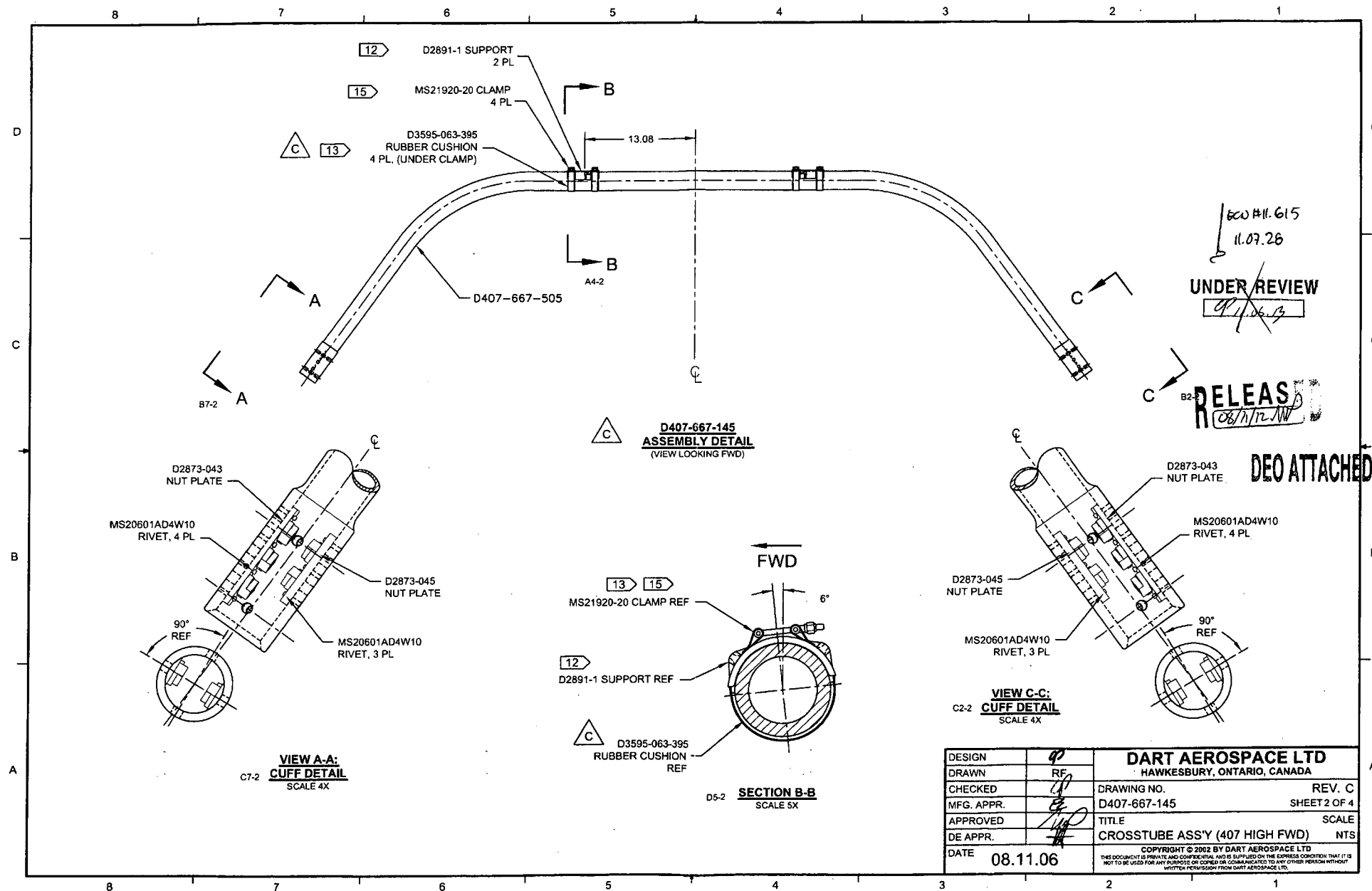
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Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

7790



Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

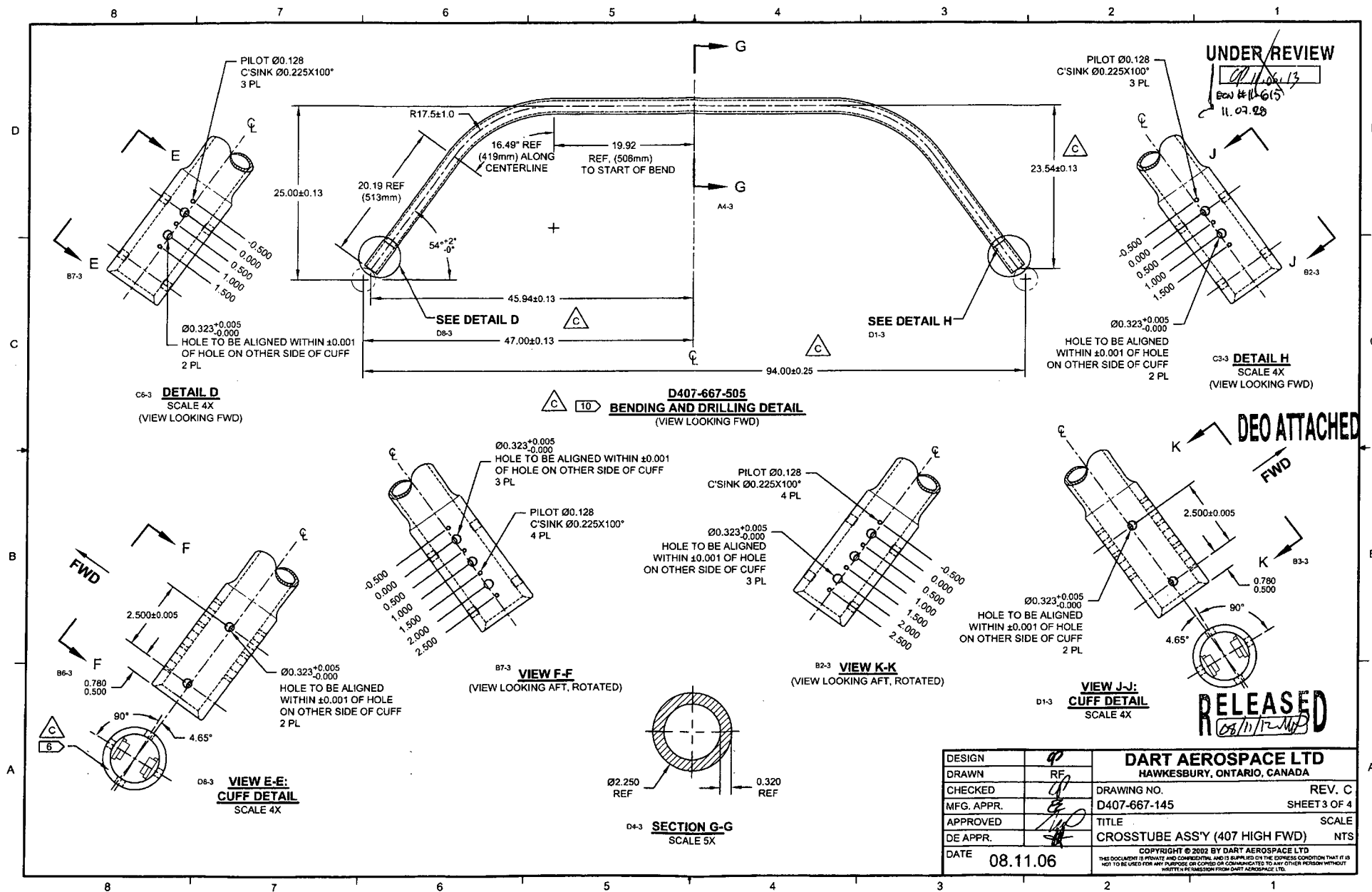
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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

79790



W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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NOTE: Date & initial all entries

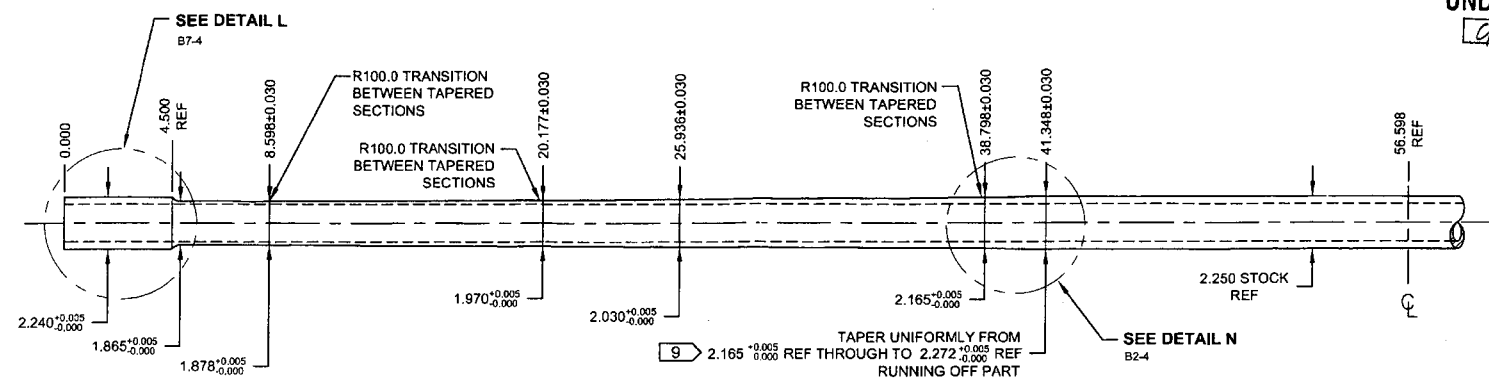
79790

UNDER REVIEW

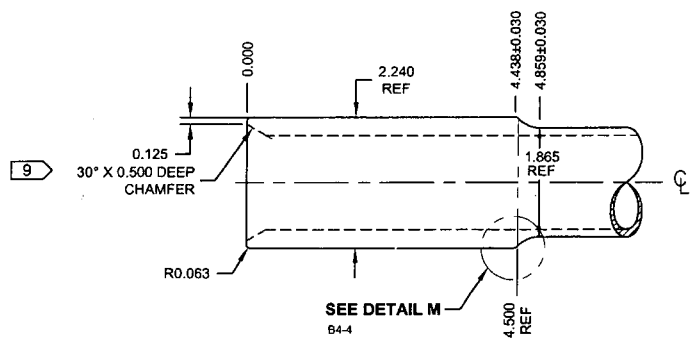
CP 11.06.13

BAW #11.615

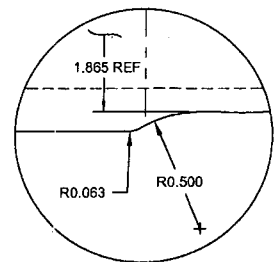
11.07.26



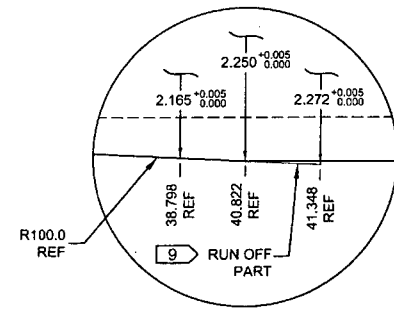
TURNING DETAIL



DETAIL L:
D7-4 **CROSSTUBE CUFF**
NOT TO SCALE



DETAIL M:
B6-4 **CUFF TRANSITION**
NOT TO SCALE



DETAIL N:
C3-4 **TAPER RUN-OFF**
NOT TO SCALE

DEO ATTACHED

RELEASED
08/11/13

DESIGN	CP	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	CP	DRAWING NO.	REV. C
MFG. APPR.	CP	D407-687-145	SHEET 4 OF 4
APPROVED	CP	TITLE	SCALE
DE APPR.	CP	CROSSTUBE ASSY (407 HIGH FWD)	NTS
DATE	08.11.06	<small>COPYRIGHT © 2002 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

79790

DRAWING NO. D407-667-145	TITLE CROSSTUBE ASS'Y (407 HIGH FWD)	REV. C	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D407-667-145-C-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN 9P	CHECKED ASS	MFG. APPR. 123	APPROVED WD		DE APPR. H		
DATE 11.07.15	DATE 11.07.22	DATE 11.07.22	DATE 11/07/22		DATE 11.07.21		

PURPOSE:

REPLACE MAGNOBOND WITH PROSEAL.

CHANGE:

IS:

Item	Qty -145	Part Number	Description
9	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

WAS:

9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)
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NOTE 12 & 15, SHEET 1 IS AMENDED AS FOLLOWS:

IS:

- 12) TO INSTALL D2891-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. **PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.**

WAS:

- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

RELEASED
2011-07-28
WD

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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NOTE: Date & initial all entries



LIQUID PENETRANT TEST REPORT

P- 12178

CLIENT	DART Aerospace	DATE	03/23/2012	PAGE	1	OF	1	
ATTENTION	LINDA LACELLE	ACUREN JOB NO.	188-12-C0072	TIME	AM	<input checked="" type="checkbox"/>	PM	<input type="checkbox"/>
ADDRESS	1270 ABERDEEN ST. HAWKES BURY ON.	PO/NO No.	-	WORK LOCATION	SAME			
PROJECT	F.P.I. on CROSS TUBES	ACCEPTANCE STD.	ASTM 1417/031-008	REV./DATE	2005			
ITEM(S) EXAMINED	(9)							

JOB DESCRIPTION	PROCEDURE No. LT-102	REV./DATE	2008	TECHNIQUE No. LT-102	REV./DATE	2008	
PART NO.	SEE RESULTS		MATERIAL	ALUMINE ALUMINUM		THICKNESS	VARIABLE
SCOPE	A WET FLUORESCENT LIQUID PENETRANT INSPECTION WAS CARRIED OUT ON 100% EXTERNAL SURFACE						

TEST DETAILS	
METHOD	<input checked="" type="checkbox"/> FLUORESCENT <input type="checkbox"/> VISIBLE
FAMILY BRAND	MAGNAFLUX
PENETRANT	2667 MINIMUM DWELL TIME 45X MIN.
PENETRANT REMOVER	H2O MINIMUM DRY TIME >10 MIN.
DEVELOPER	SK052 MINIMUM DWELL TIME 10 MIN.
DEVELOPER TYPE	<input checked="" type="checkbox"/> NON AQUEOUS <input type="checkbox"/> AQUEOUS <input type="checkbox"/> DRY
WATER WASH <input checked="" type="checkbox"/> SOLVENT REMOVABLE <input type="checkbox"/> POST EMULSIFIED	
BLACK LIGHT S/N 16459 <input type="checkbox"/> OUTPUT > 1000 μ W/CM <input type="checkbox"/> AMBIENT < 2 fc	
LIGHTING EQUIP. <input type="checkbox"/> FLASHLIGHT <input type="checkbox"/> TROUBLELIGHT <input type="checkbox"/> OUTPUT > 100 fc @ SURFACE	
OTHER	
LIGHT METER S/N 1098866 CAL DUE DATE July 08	
2012	

TEST SURFACE	
SURFACE CONDITION	<input type="checkbox"/> AS GROUND <input checked="" type="checkbox"/> AS WELDED <input type="checkbox"/> MACHINED <input type="checkbox"/> SHOT BLASTED <input type="checkbox"/> CLEAN BARE METAL
SURFACE TEMPERATURE	<input type="checkbox"/> < -4°C/20°F <input type="checkbox"/> -4°C/20°F TO 10°C/50°F <input type="checkbox"/> 10°C/50°F TO 52°C/125°F <input type="checkbox"/> > 52°C/125°F

RESULTS-	<input checked="" type="checkbox"/> METRIC <input type="checkbox"/> IMPERIAL
CROSS TUBES	
1	W.O.# 78700 ✓
1	" " 78699 ✓
1	" " 81481 ✓
1	" " 81480 ✓
1	" " 81790 ✓
1	" " 79790 ✓
1	" " 79842 ✓
1	" " 81791 ✓
A REGRIND AREA ()	
S 12/03/20	

Scope of Services

The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care

In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES

CLIENT REPRESENTATIVE	Andrew Sheldon	Alsheldon	DTR #	EG 3470
TECHNICIAN (SIGNATURE):	[Signature]		REPORT	
NAME (PRINT):	Mike J. Huston		REVIEWED BY:	
CGSB LEVEL	1 ST TECHNICIAN	2 ND TECHNICIAN	NAME	INITIALS
CGSB REG. No	6606			

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